

Appl. No. 10/604,862
Reply to Office action of August 16, 2007

Amendments to the Claims:

The listing of claims will replace all prior versions and listings of claims in the application:

5 Listing of Claims:

Claim 1 (currently amended): A high-speed optical recording apparatus in an optical storage device for generating a write signal according to an RLL modulation waveform inputted to the high-speed optical recording apparatus, so as to control a writing power of a pickup in the optical storage device, the recording apparatus comprising:

10 a clock generator for generating a first clock signal and a second clock signal different from the first clock signal;

an adjustment data storage unit for storing a plurality of sets of write strategy parameters, and selecting and outputting a corresponding set of write strategy parameters from plurality of the sets of write strategy parameters according to the RLL modulation waveform;

15 a delay adjustment state machine receiving the second clock signal and the selected set of write strategy parameters, the delay adjustment state machine for generating a rough delay parameter and a fine delay parameter according to the selected set of write strategy parameters, and for delaying the RLL modulation waveform according to the second clock signal and the set of write strategy parameters so as to generate a second delay signal;

20 a rough delay counter or a rough delay shift register receiving the first clock signal, the second delay signal, and the rough delay parameter, the rough delay counter or the rough delay shift register for delaying the second delay signal according to the first clock signal and the rough delay parameter so as to generate a first delay signal; and

25 ~~a rough delay unit electrically connected to the clock generator to receive the first clock signal, and further electrically connected to the adjustment data storage unit to receive the selected set of write strategy parameters, the~~
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~~rough delay unit for generating a fine delay parameter according to the
selected set of write strategy parameters, and for delaying the RLL
modulation waveform according to the first clock signal and the selected
set of write strategy parameters to generate a first delay signal;~~
5 a fine delay chain electrically connected to the rough delay unit to receive
~~receiving~~ the first delay signal and the fine delay parameter, the fine delay
chain for delaying the first delay signal according to the fine delay
parameter so as to generate the write signal, the fine delay chain having a
plurality of serially connected delay cells, each delay cell delaying the first
10 ~~delay an input~~ signal by a predetermined period. [[:]]
~~the delay cells are a plurality of serially connected inverters or buffers, the fine
delay chain further comprising a multiplexer for selecting the write signal from
a plurality of outputs of the inverters or buffers.~~

15 Claim 2-3 (cancelled)

Claim 4 (previously presented): The high-speed optical recording apparatus of claim 1
wherein clock generator comprises a phase locked loop for generating the first
clock signal, and a frequency divider for dividing a frequency of the inputted
20 first clock signal to generate the second clock signal.

Claim 5 (previously presented): The high-speed optical recording apparatus of claim 1
wherein a period of the second clock signal is equal to a base period of the RLL
modulation waveform.

25 Claim 6 (previously presented): The high-speed optical recording apparatus of claim 1
wherein a period of the second clock signal is equal to a multiple of a period of
the first clock signal.

30 Claim 7 (previously presented): The high-speed optical recording apparatus of claim 1

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wherein a resolution of the delay adjustment state machine delaying the RLL modulation waveform is equal to a period of the second clock signal.

5 Claim 8 (previously presented): The high-speed optical recording apparatus of claim 1 wherein the rough delay counter comprises a counter, and a comparator.

10 Claim 9 (previously presented): The high-speed optical recording apparatus of claim 1 wherein a resolution of the rough delay counter delaying the second delay signal is equal to a period of the first clock signal.

Claim 10 (currently amended): The high-speed optical recording apparatus of claim 1 further comprising an ~~NRZI~~ EFM input interface for receiving the ~~NRZI~~ RLL modulation waveform and generating an address signal.

15 Claim 11 (currently amended): The high-speed optical recording apparatus of claim 10 wherein the EFM input interface generates the address signal according to a previous land section, a current pit section, and a next land section in the ~~EFM~~ RLL modulation waveform.

20 Claim 12 (currently amended): The high-speed optical recording apparatus of claim 10 wherein the rough delay unit is electrically connected to the ~~NRZI~~ EFM input interface to receive the ~~NRZI~~ RLL modulation waveform.

25 Claim 13 (original): The high-speed optical recording apparatus of claim 10 wherein the adjustment data storage unit is electrically connected to the EFM input interface to receive the address signal for selecting the corresponding write strategy parameter according to the address signal.

30 Claim 14 (previously presented): The high-speed optical recording apparatus of claim 1 further comprising a data storage setting interface electrically connected to the

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adjustment data storage unit, and further electrically connected to a microprocessor of the optical storage device to receive the sets of write strategy parameters and storing the sets of write strategy parameters into the adjustment data storage unit.

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Claim 15-17 (cancelled)

Claim 18 (currently amended): The high-speed optical recording apparatus of claim 1 wherein the ~~EFM~~ RLL modulation waveform is generated by an EFM encoder of the optical storage device.

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Claim 19-39 (cancelled)

Claim 40 (currently amended): A high-speed optical recording apparatus in an optical storage device for generating a write signal according to an RLL modulation waveform inputted to the high-speed optical recording apparatus, so as to control a writing power of a pickup in the optical storage device, the recording apparatus comprising:

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a clock generator for generating a first clock signal;
an adjustment data storage unit for storing a plurality of sets of write strategy parameters, and selecting and outputting a corresponding set of write strategy parameters from the plurality of sets of write strategy parameters according to the RLL modulation waveform;

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a rough delay unit electrically connected to the clock generator to receive the first clock signal, and further electrically connected to the adjustment data storage unit to receive the selected set of write strategy parameters, the rough delay unit for generating a fine delay parameter according to the selected set of write strategy parameters, and for delaying the RLL modulation waveform according to the first clock signal and the selected set of write strategy parameters to generate a first delay signal; and

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5 a fine delay chain electrically connected to the rough delay unit to receive the first delay signal and the fine delay parameter, the fine delay chain for delaying the first delay signal according to the fine delay parameter so as to generate the write signal, ~~and the fine delay chain comprising a plurality of serially connected delay cells, an output of each delay cell thereby delaying an input the first delay signal by a predetermined period corresponding to a number of previous delay cells in the fine delay chain;~~ wherein the fine delay chain is not connected to and does not utilize a clock signal for delaying the first delay signal to generate the write signal.

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Claim 41-42 (cancelled)

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Claim 43 (new): The high-speed optical recording apparatus of claim 1 wherein the delay cells within the fine delay chain are inverters.

15 Claim 44 (new): The high-speed optical recording apparatus of claim 1, wherein the delay cells within the fine delay chain are buffers.

20 Claim 45 (new): The high-speed optical recording apparatus of claim 1, wherein the fine delay chain is not connected to and does not utilize a clock signal for delaying the first delay signal to generate the write signal.

25 Claim 46 (new): The high-speed optical recording apparatus of claim 1, wherein the fine delay chain is for delaying the first delay signal only according to the fine delay parameter so as to generate the write signal.

30 Claim 47 (new): The high-speed optical recording apparatus of claim 1, wherein the fine delay chain further comprises a multiplexer having inputs coupled to outputs of the delay cells, a selecting end coupled to the fine delay parameter, and an output end being coupled to the write signal, the multiplexer for generating the

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write signal being one of the outputs of the delay cells as selected according to the fine delay parameter.